

Attorney's Docket: 1997DB403C/CIP
Serial No.: 10/788,261
Art Unit 1714
Response to Office Action of July 8, 2003

This listing of claims will replace all prior versions, and listings of claims in the application:

1.(Currently Amended) A fuel oil middle distillate composition comprising:

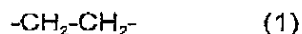
A) a mineral oil having a cloud point of less than -8°C , a boiling range (90-20%) of less than 120°C , a 95% distillation point of less than 350°C and a difference between CFPP and PP of less than 10°C , and

B) an additive selected from the group consisting of a flow improver, an oil soluble co-additive, and mixtures thereof, wherein the [[a]] flow improver consisting essentially consists of:

1) one or more copolymers present in an amount of 0.001 to 2% by weight, based on the weight of the oil, wherein the copolymers have melt viscosities of from 20 to 10,000 mPas at 140°C and wherein the copolymers consist essentially of a) and b):

a) bivalent structural unit (B1) present in an amount of from 85 to 97 mol%

wherein (B1) is a bivalent structural unit of formula(1)



and

b) one or more of the bivalent structural units (B2) present in an amount of from 3 to 15 mol%

wherein

(B2) is either a bivalent structural unit of formula (2):



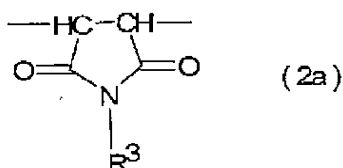
in which R^1 is hydrogen or methyl

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R^2 is COOR^3 , OR^3 or OCOR^3 , and R^3 is an alkyl radical having at least 4 and at most 30 carbon atoms,

or

(B2) is a bivalent structural unit of the formula (2a)



in which R^3 is an alkyl radical having at least 4 and at most 30 carbon atoms, wherein the copolymers optionally consist essentially of from 0 ^{[[up]]} to 4% by weight of vinyl acetate and ~~or up of~~ from 0 to 5% by weight of further comonomers except vinyl acetate^{[[,]]}:

and

2) optionally an wherein the oil soluble co-additive is selected from the group consisting of paraffin dispersants, and ~~vinyl acetate containing copolymers or terpolymers of ethylene, and mixtures thereof.~~

2.(Previously Presented) The fuel oil composition as claimed in claim 1, wherein R^1 is hydrogen.

3.(Currently Amended) The fuel oil composition as claimed in claim 1, wherein R^3 of formula (2) and formula (2a) in the bivalent structural units (B2) is $\text{C}_5\text{-C}_{24}$ -alkyl or a neoalkyl radical having 7 to 11 carbon atoms.

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4.(Currently Amended) The fuel oil composition as claimed in claim 1, wherein R³ of formula (2) and formula (2a) in the bivalent structural units (B2) is C₈-C₁₈-alkyl or a neoalkyl radical having 8, 9, or 10 carbon atoms.

5.(Previously Presented) The fuel oil composition as claimed in claim 1, wherein the copolymers stated under B) have melt viscosities at 140 °C of from 30 to 5000 mPas.

6.(Previously Presented) The fuel oil composition as claimed in claim 1, wherein the copolymers stated under B) have melt viscosities at 140 °C of from 50 to 2000 mPas.

7.(Currently Amended) The fuel oil composition as claimed in claim 1, wherein the structural units of formula (2) and formula (2a) of (B1) and (B2) stated under (B) are selected from the group consisting of vinyl ethers, alkylacrylates, alkyl methacrylates, [[or]] higher olefins having at least 5 carbon atoms, and mixtures thereof.

8.(Currently Amended) The fuel oil composition as claimed in claim 7 wherein the higher olefins are selected from the group consisting of hexene, 4-methylpentene, octene, [[and]] diisobutylene, and mixtures thereof.

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9.(Previously Presented) The fuel oil composition as claimed in claim 1, wherein the mineral oils stated under A) have sulfur contents of less than 500 ppm.

10.(Previously Presented) The fuel oil composition as claimed in claim 1, wherein the mineral oils stated under A) have sulfur contents of less than 300 ppm.

11.(Previously Presented) The fuel oil composition as claimed in claim 1, wherein the mineral oils stated under A) have sulfur contents of less than 100 ppm.

12.(Previously Presented) The fuel oil composition as claimed in claim 1, wherein the mineral oil has a cloud point of below -15°C.

13.(Previously Presented) The fuel oil composition as claimed in claim 1, wherein the mineral oil has a boiling range (90-20%) of less than 100°C.

14.(Previously Presented) The fuel oil composition as claimed in claim 1, wherein the mineral oil has a boiling range (90-20%) of less than 80°C.

15.(Canceled)

16.(Previously Presented) The fuel oil composition as claimed in claim 1, wherein the composition comprises from 85 to 96 mol% of comonomers (B1) and from 3 to 15 mol% of comonomers (B2).

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17.(Previously Presented) The fuel oil composition as claimed in claim 1, wherein the composition comprises from 90 to 96 mol% of comonomers (B1) and from 4 to 10 mol% of comonomers (B2).

18.(New) A fuel oil middle distillate composition comprising:

A) a mineral oil having a cloud point of less than -15°C , a boiling range (90-20%) of less than 80°C , a 95% distillation point of less than 350°C and a difference between CFPP and PP of less than 10°C , and

B) an additive selected from the group consisting of a flow improver, an oil soluble co-additive, and mixtures thereof, wherein the flow improver consists of one or more copolymers present in an amount of 0.001 to 2% by weight, based on the weight of the oil, wherein the copolymers have melt viscosities of from 20 to 10,000 mPas at 140°C and wherein the copolymers consists of a) and b):

a) bivalent structural unit (B1) present in an amount of from 85 to 97 mol%

wherein (B1) is a bivalent structural unit of formula(1)

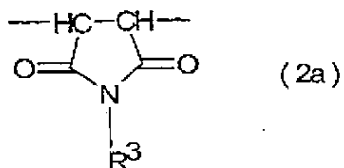


and

b) one or more of the bivalent structural units (B2) present in an amount of from 3 to 15 mol%

wherein (B2) is a bivalent structural unit of the formula (2a)

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in which R³ is an alkyl radical having at least 4 and at most 30 carbon atoms wherein the copolymers consist of from 0 up to 4% by weight of vinyl acetate and of from 0 to 5% by weight of further comonomers except vinyl acetate, and

wherein the oil soluble co-additive is selected from the group consisting of paraffin dispersants, terpolymers of ethylene, and mixtures thereof.